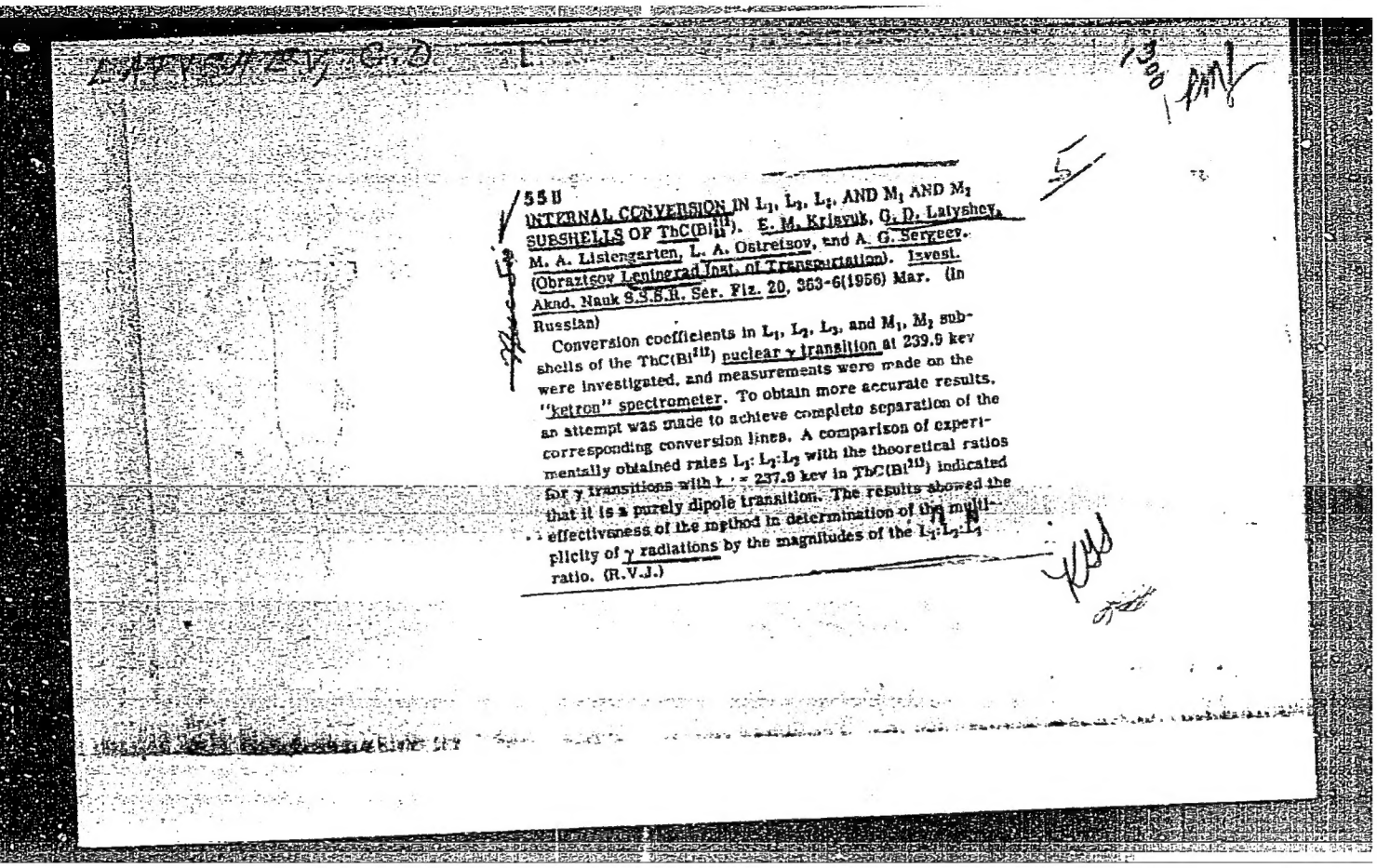
LATYSHEV, G.D.; SERGEYEV, A.G.; KRISYUK, E.M.; OSTRETSOV, L.A.; YEGOROV, Yu.S.; SHIRSHOV, N.M.

Natural breadth of the internal conversion lines of the active precipitate of radiothorium. Izv.AN SSSR.Ser.fiz. 20 no.3: 354-362 Mr '56. (MLRA 9:8)

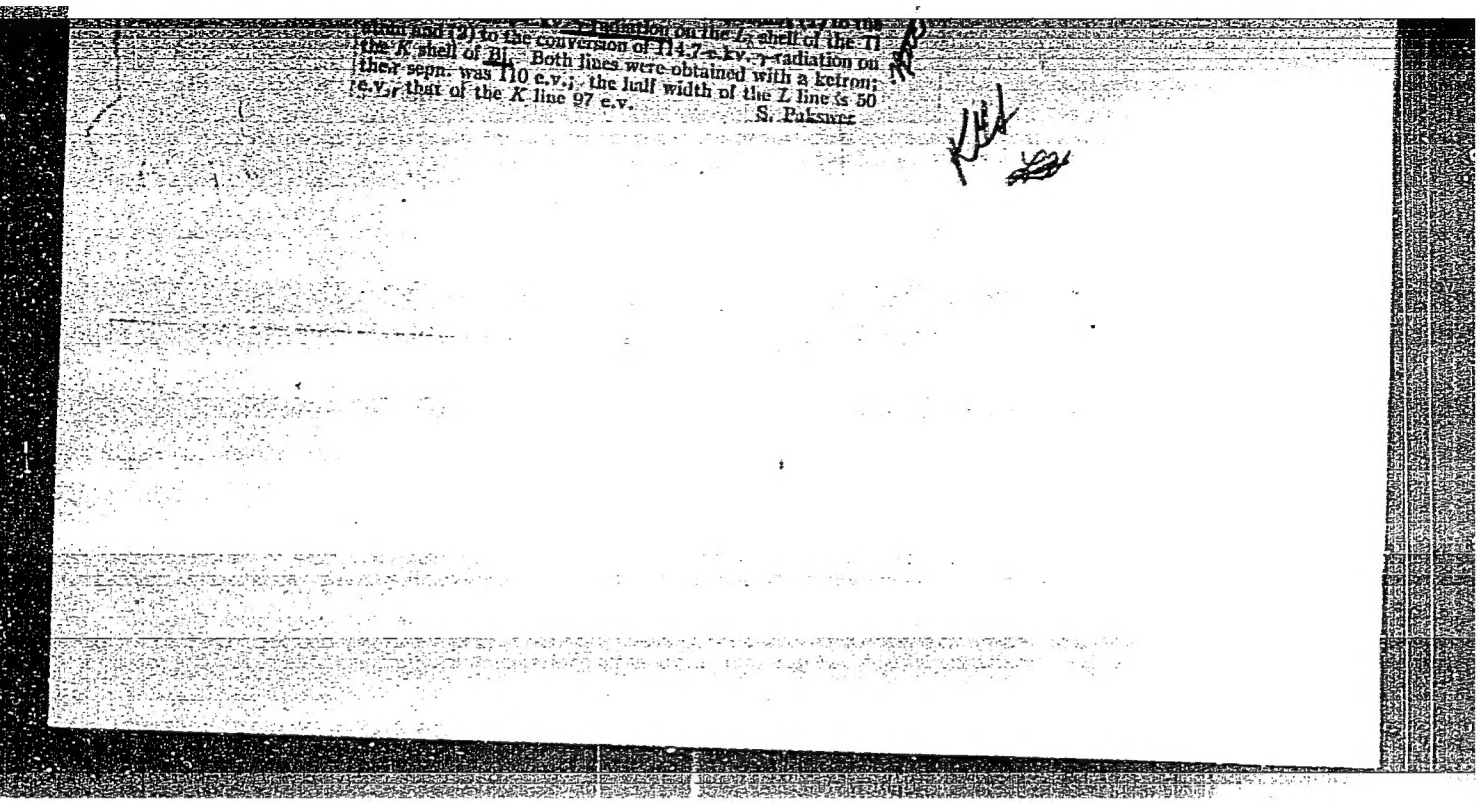
1. Kafedra fiziki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta imeni V.N. Obraztsova.
(Radiothorium--Spectra)



55 II

INTERNAL CONVERSION IN L_1, L_2, L_3, AND M_1 AND M_2 SUBSHELLS OF ThC(Bi^{212}). E. M. Krivzuk, G. D. Latyshev, M. A. Listengarten, L. A. Ostretsov, and A. G. Sergeev. (Obrazitsov Leningrad Inst. of Transportation). Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, 363-6(1956) Mar. (In Russian)

Conversion coefficients in L_1, L_2, L_3, and M_1, M_2 subshells of the ThC(Bi^{212}) nuclear γ transition at 239.9 kev were investigated, and measurements were made on the "ketron" spectrometer. To obtain more accurate results, an attempt was made to achieve complete separation of the corresponding conversion lines. A comparison of experimentally obtained ratios L_1: L_2:L_3 with the theoretical ratios for γ transitions with γ = 237.9 kev in ThC(Bi^{212}) indicated that it is a purely dipole transition. The results showed the effectiveness of the method in determination of the multiplicity of γ radiations by the magnitudes of the L_1:L_2:L_3 ratio. (R.V.J.)



[illegible] and 12) to the conversion on the L_X shell of the Tl
the K shell of Bi. Both lines were obtained with a betron;
their sepn. was 110 e.v.; the half width of the L line is 50
e.v., that of the K line 97 e.v.

S. Paksuer

LATYSHEV, G.D.

USSR / Magnetism. Experimental Methods of Magnetism. F-2

Abs Jour : Ref Zhur - Fizika, No 3, 1957, 6831

Author : Sergeyev, A.G., Latyshev, G.D., Leonov, V.D.
Title : Measurement of the Magnetic Field by Using Magnetic Resonance of Protons in Beta Spectroscopy.

Orig Pub : Izv. AN SSSR, ser. fiz., 1956, 20, No 3, 369 - 370

Abstract : A method whereby the intensity of the magnetic field is measured with the aid of nuclear magnetic resonance was used to measure the field intensity in a beta spectrometer of the ketron type. The apparatus employed is conventional for this method, comprising a high frequency generator and the observation of signals with the aid of an oscillograph. The frequency was measured with a heterodyne wavemeter with an accuracy 3×10^{-5}, and also with a special circuit, giving an accuracy 2×10^{-6}. The range of fields measured was from 100 to 1300 oersted. The accuracy of the method is estimated by

Card : 1/2

USSR /Magnetism. Experimental Methods of Magnetism. F-2

Abs Jour : Ref Zhur - Fizika, No 3, 1957, 6831

Abstract : by the authors to be 2×10^{-5} in the range 150 -- 400 oersted and to increase with increasing field intensity.

Card : 2/2

ZHUKOVSKIY, Yu.G.; KRISYUK, E.M.; LATYSHEV, G.D.; SERGEYEV, A.G.

Magnetic aftereffect in iron-core electromagnets. Izv.AN SSSR. Ser.fiz. 20 no.3:371-373 Mr '56. (MLRA 9:8)

1. Kafedra fiziki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta imeni V.N. Obraztsova.
(Electromagnets)

KRISYUK, E.M.; VITMAN, A.D.; VOROB'YEV, V.D.; LATYSHEV, G.D.; SERGEYEV, A.G.

Internal conversion electron spectra of active radiothorium deposits. (Region H 2600 -10300 Gs.cm.). Izv.AN SSSR.Ser.fiz.20 no.8:877-882 Ag '56.

1. Kafedra fiziki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta imeni V.N.Obraztsova.

(Radiothorium--Spectra)

LATYSHEV, G.D.

KRISYUK, B.M.; VITMAN, A.D.; VOROB'YEV, V.D.; VOROB'YEV, I.V.; IL'IN, K.I.; LATYSHEV, G.D.; LISTENGARTEN, M.A.; SERGEYEV, A.G.

Internal conversion in the Pb^{208} atom in 2615 kev transitions. Izv.AN SSSR.Ser.fiz.20 no.8:883-890 Ag '56. (MLRA 9:12)

1. Kafedra fiziki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta imeni V.N.Obraztsova.
(Lead--Isotopes)

ANNOTATED

120-2-17/37

AUTHOR: Zhernovoy, A. I., Iatyshev, G. D., and Sergeyev, A.G.

TITLE: Magnetic Field Measurement by the Proton magnetic Resonance Method. (Izmereniye Magnitnogo Polya Metodom Magnitnogo Rezonansa Protonov.)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.2, pp. 60 - 63 (USSR).

ABSTRACT: In the present article the authors describe an instrument which measures magnetic field intensities within the range necessary for β-spectroscopy. The accuracy of relative measurements of the field, evaluated from the resonant absorption curve width is 10^{-4} in the range 35-100 oersted, 2×10^{-5} in the range 100-400 oersted and increases with the field intensity. The accuracy of control measurements is determined from the reproducibility of maxima of conversion lines. The construction of the source elements, of the high frequency coil element (litz wire ПЕЛО 10 x .07 for each layer) and of the radio frequency generator are given. The latter is based on the standard circuitry as used for investigations of nuclear resonance (Ref. 2). The oscillator consists of RF coil of the source element, connected through a co-axial cable PK-150, length 2 meters, to the variable condenser C = 1000PF. The oscillator uses

Card 1/3

Magnetic Field Measurement by the Proton Magnetic Resonance Method.

tube 6H15P. The HF amplifier uses a tube type 6 ЖП with a resistive load. The detector is a diode connected 6ЖП tube. The output from the HF amplifier is applied to a wide band amplifier and to a beat frequency oscillator giving beats with accuracy ± 1cps. The block diagram of the BFO is described in Reference 13. Parts of the heterodyne frequency meter type 530 were used as the quartz generator multiplier mixer and detector. Frequency beats were measured by means of the audio generator type 641 and the harmonics were determined with the heterodyne-voltmeter type 526. A graph of the dependence of the half width of the resonant absorption curve of $FeCl_3$ concentration in water, schematic drawings of the toroidal and of the cylindrical magnetic field sources, a circuit diagram of the RF part of the instrument, a diagram of the capacity filter (Fig. 5) and a circuit diagram of the modulating circuit with the phase inverter are given. A table of numerical results is produced. There are 14 references, 9 of which are Slavic.

SUBMITTED: August, 27, 1956.

ASSOCIATION: Leningrad Institute of Railway Transport Engineers imeni V. N. Obraztsov. (Leningradskiy Institut Inzhenerov

Card 2/3

LATYSHEV G.D.

120-5-9/35

AUTHORS: Yegorov, Yu.S., Latyshev, G.D., and Trulev, Yu.I.

TITLE: Stabilization of the Magnetic Field in Magnetic Spectrometers (Stabilizatsiya magnitnogo polya v magnitnykh spektrometrakh)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.5, pp. 41 - 46 (USSR).

ABSTRACT: An instrument is described which uses the phenomenon of nuclear proton resonance to stabilize the magnetic field in a beta spectrometer. The stable point of operation may be chosen anywhere in the range 140 to 1 400 Oe. The degree of stabilization is approx. 2.10^{-5} for fields greater than 300 Oe and 4.10^{-5} for fields greater than 140 Oe. Table 1 gives details of the pick-up coil. For fields up to 940 Oe, the coil is a toroid of volume 13 cm^3 and Q-value about 70. Fig. 1 is the circuit of the amplitude bridge and l.f. amplifier. Fig. 2 shows the phase-detector and d.c. amplifier. Fig. 4 is the F-line resonance (Hρ = 1 389). This curve was repeated 5 times and the position of the maximum could be located to an accuracy of 4.10^{-5}. The equipment has been used over a period of four months for investigating the electron spectrum of RaTh in the range 140 to 2 600 keV. The stabili ation coefficient of the circuit against changes in the current in the main field coil

Card1/2

Stabilization of the Magnetic Field in Magnetic Spectrometers.

is 100. The main field was supplied from accumulators and had a drift rate of 0.01%/sec. in current. The dominant time constant in the feedback circuit was 5 sec. A note added in proof reports that the lower limit to the field which can be stabilized has recently been reduced to 12 Oe, while measurements may extend down to 5 Oe.
There are 6 figures, 1 table and 12 references, 7 of which are Slavic.

ASSOCIATION: Leningrad Institute of Railway Transport Engineers (Leningradskiy institut inzhenerov zheleznodorozhnogo transporta)

SUBMITTED: December 29, 1956.

AVAILABLE: Library of Congress

Card 2/2

LATYSHEV G. D.

LATYSHEV, G. D., and KOVRYGIN, O. D.

"Application of the Photo-Electron-Multiplier, type Y-12, to the Scintillation Spectrometry and -type Flaw Detection."

A conference on Electron and Photo-Electron Multiplier; Radiotekhnika i Elektronika, 1957, Vol. II, No. 12, pp. 1552-1557 (USSR)

Abst: A conference took place in Moscow during February 28 and March 6, 1957 and was attended by scientists and engineers from Moscow, Leningrad, Kiev and other centres of the Svoeit Union. Altogether, 28 papers were read and discussed.

LATyshev, GD

48-7-6/21

AUTHORS: Vorob'yev, V.D., Il'in, K.I., Kol'chinskaya, T.I., Latyshev, G.D., Sergeyev, A.G., Trofimov, Yu.N., Fadeyev, V.I.

TITLE: The Spectrum of the Electrons of the Internal Conversion of Active Radium-Containing Thorium Deposits
III(Domain $H\rho$ = 1380 to 2700 and 3500 to 9000 Gs. cm.)
(Spektr elektronov vnutrenney konversii aktivnogo osadka radiotoriya III(Oblast' $H\rho$ = 1380 do 2700 i 3500 do 9000 Gs. cm) toriya)

PERIODICAL: Izvestiya Akad. Nauk SSSR, Ser. Fiz. , 1957, Vol. 21, Nr 7, pp. 954 - 961 (USSR)

ABSTRACT: 1.) The intensities of the conversion lines. In the determination of the relative intensities of conversion lines the fact was taken into account that a portion of the atoms ThC' falls down from the source due to the α-emission on the decay ThC' $\xrightarrow{\alpha}$ ThC". This circumstance leads to the fact that the intensity of all conversion lines developing on the decay ThC' $\xrightarrow{\beta}$ ThD decrease by 30 % in comparison with the intensity of the lines of other nuclei. Therefore the intensities of all lines which develop in connection with the decay ThC" $\xrightarrow{\beta}$ ThD were determined with regard to the line L which develops in the same decay. The

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48-7-6/21

The Spectrum of the Electrons of the Internal Conversion of Active Radium-Containing Thorium Deposits
III(Domain Hρ = 1380 to 2700 and 3500 to 9000 Gs. cm.)

intensities of the other lines were determined with regard to the I-line ThB → ThC. In order to connect all intensities with each other the relation of the L - and I - line intensities to the source was determined , the latter being covered by a foil in order to prevent a falling down of the emission atoms. Detailed calculations and explanations are given. The authors estimate the accuracy of their measuremtns of the absolute intensities with 5 - 10 % for the intensive lines.

2.)The conversion spectrum in the domain Hρ = 1380 to 2600 Gs.cm
In the study of this portion of the spectrum 3 series of measurements were made. In every series the position and intensities of the lines were determined. The average values of Hρ and of the intensities are given in table 1, as well as the energy of the electrons and of the corresponding γ-transitions, the identification of the lines and comparative values of earlier works. It may be seen that the values obtained by the authors for Hρ and for the intensities differ markedly from earlier obtained values, where a photorecording of the electrons had been employed. Figures 1, 2, 3 and 4 represent some parts of the spectra of

Card 2/3

48-7-6/21

The Spectrum of the Electrons of the Internal Conversion of Active Radium-Containing Thorium Deposits
III(Domain $H\rho$ = 1380 to 2700 and 3500 to 9000 Gs. cm.)

conversion electrons in the domain $H\rho$ = 1380 + 2600 Gs. cm.

3.) The conversion spectrum in the "rigid" domain. Certain lines discovered by the authors are recorded on figures 5, 6 and 7, their energies and intensities on table 2. There are 2 tables, 7 figures and 16 references, 8 of which are Slavic.

ASSOCIATION: Department of Physics, Leningrad Institute of Railroad Transportation Engineers
(Kafedra fiziki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta)

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Card 3/3

LATYSHEV, G. D.

ARKHANGEL'SKIY, A.A.; LATYSHEV, G.D.

Using the scintillation counter in gamma flaw detection. Zav. lab. 23 no.4:430-436 '57. (MLRA 10:6)

1. Leningradskiy institut inzhenerov zheleznodorozhnogo transporta.
(Gamma rays) (Scintillation counters)
(Nondestructive testing)

Latyshev, G.D

AUTHOR ZHERNOVOY, A.I., KRISYUK, E.M., LATYSHEV, G.D., REMENNYY, A.S., 56-4-7/52
SERGEYEV, A.G., FADEYEV, V.I.

TITLE Spectra of the Internal Conversion Electrons of the Active Precipitation of Radiathorium II.
(Spektr elektronov vnutrenney konversii aktivnogo osadka radiotoriyaII - Russian)

PERIODICAL Zhurnal Eksperim.i Teoret.Fiziki,1957,Vol 32,Nr 4, pp 682-689(U.S.S.R.)
Received 7/1957 Reviewed 8/1957

ABSTRACT Investigation of the active precipitation was carried out within the domán H 500-1380 cm magnetic spectrometer (width of lines 0,25%, angle of the spectrometer in the horizontal plane 40°, height of diaphragm 16 mm). The magnetic field was measured by the method of proton magnetic resonance. Registration of electrons was carried out by means of 2 self-extinguishing GM counters. The position andthe intensities of K and L conversion electron energies or the electrons are computed according to the formula

$EKL_pL_q = E^z_K - E^z_{L_p} - E^{z+\Delta z}_{Lq}$ where E^z_K and E^z_{Lp} denote the binding energies of K and Lp electrons in the normal atom, and $E^{z+\Delta z}_{Lq}$ is the binding energy of Lq electrons in the atom in which no Lp electrons are present. The decrease of the quality of the shielding effect can be explained by the increase of the charge: $\Delta Z=(E^{z+\Delta z}_{Lq} - E^z_{Lq})/(E^{z+1}_{Lq} - E^z_{Lq})$. Theoretical computation of the quantity ΔZ is complicated and at present not yet possible. The spectra of the internal conversion of the active precipitation of radia-

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Spectra of the Internal Conversion Electrons of the Active Precipitation of Radiathorium II. 56-4-7/52

thorium were at first investigated by Ellis and later by Suryug and Arnu, who used the method of photographic registration of electrons. The disadvantage of this method is a grave error in determining the intensity of the line.This error is mainly connected with the necessity of introducting a correction of the spectral sensitivity of the photoplates as well as by the nonlinear dependence of the blackening of the intensity of radiation.Measuring of the internal conversion of the active precitpitation of radiathorium in the case of a half-width of the device of 0,25% are acceptable in particular because with this half-width the greater part ofthe lines is resolved in a soft domain, and as the device possesses sufficient power, also rather weak lines can be observed. For an exact determination of line intensity high stability of the effectiveness of the counters is necessary.The voltage of the counters was generated by the rectifier NC-16.The modification of feed voltage in 24 hours after a heating of 3 hours did not exceed 1 V.For the control of voltage a galvanometer with scale was used. It was established with accuracy that the intensities of conversion lines amounted to 3-5% for strong and 20-30% for weak lines.

ASSOCIATION Leningrad Institute for Railroad Transport Engineering

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SUBMITTED 24.11.1956
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Card 2/2

LATYSHEV, G. D.

56-5-9/46

AUTHORS: Sergeyev, A. G., Krisyuk, E. M., Latyshev, G. D., Trofimov, Yu. N., Remennyy, A. S.

TITLE: The Deday Scheme of $Bi^{212} \longrightarrow Po^{212}$ (Skhema raspada $Bi^{212} \longrightarrow Po^{212}$)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957, Vol. 33, Nr 5, pp. 1140-1143 (USSR)

ABSTRACT: The γ conversion spectrum is recorded by means of a semicircle spectrometer and the following γ-lines are found (in KeV):

727,2
785,4
893,4
952,7
1073,7
1078,5
1512,6
1620,4
1800,2

The above lines, except the 1078,5 line, can be classified in a decay scheme in which the following levels (given in KeV) are formed in thePo-212. (Both spin and parity are given in parenthesis):

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The Decay Scheme of $Bi^{212} \longrightarrow Po^{212}$. 56-5-9/46

0	(0+)
727,2	(2+)
1512,6	(0,1,2)
1620,5	(1,2)
1679,9	(0,1,2)
1800,4	(0,1,2)

There are 1 table, 1 figure, and 19 references, 4 of which are Slavic.

ASSOCIATION: Leningrad Institute for Railroad-Transport Engineers (Leningradskiy institut inzhenerov zheleznodorozhnogo transporta)

SUBMITTED: May 29, 1957

AVAILABLE: Library of Congress

Card 2/2

LATYSHEV, G.D.

AUTHORS: Krisyuk, E. M., Sergeyev, A. G., Latyshev, G. D., 56-5-1o/46
Il'in, K. I., Fadeyev, V. I.

TITLE: The Decay Scheme of Tl^{2o8} (Skhema raspada Tl^{2o8})

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957, Vol. 33 Nr 5, pp. 1144-1146 (USSR)

ABSTRACT: The γ conversion spectrum of Tl^{2o8} was ploted by means of a semi-circle spectrometer and the following γ lines were found:

E_γ in KeV	Multipole order	Intensity in %
211,4	M1	0,32
233,4	M1	0,34
252,54	M1	1,1
277,35	M1	8,4
485,9	-	0,5
510,84	-	22,6
583,2	E2	83,2
763,2	M1	2
860,5	M1	12,3
2614,3	E3	100

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56-5-1o/46

The above line can be arranged in a level scheme of Pb^{2o8} which shows the following levels in MeV (spin and parity are given in parenthesis):

0	(0+)
2614	(3-)
3198	(5-)
3475	(4-)
3708	(5-)
3961	(6-)
Tl^{2o8}	(5+)

There are 1 table, 1 figure, and 15 references, 6 of which are Slavic.

ASSOCIATION: Leningrad Institute for Railroad Transport Engineers (Leningradskiy institut inzhenerov zheleznodorozhnogo transporta)

SUBMITTED: May 29, 1957

AVAILABLE: Library of Congress

Card 2/2

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928810014-8"

LATYSHEV, G.D.

25(6) PHASE I BOOK EXPLOITATION SOV/2555

Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti. Ukrainskoye respublikanskoye pravleniye

Novyye metody kontrolya i defektoskopii v mashinostroyenii i priborostroyenii [doklady Respublikanskoy konferentsii] (New Methods of Inspection and Flaw Detection in the Machinery and Instrument-manufacturing Industries [Reports of the Conference Held at Kiyev, 1956]) Kiyev, Gostekhizdat USSR, 1958. 264 p. 4,700 copies printed.

Sponsoring Agency: Akademiya nauk USSR.

Ed.: A. Amelin; Tech. Ed.: P. Patsalyuk; Editorial Board: I.I. Greben', B.D. Grozin, A.Z. Zhmudskiy, G.N. Savin (Resp. Ed.), I.D. Faynerman (Dep. Resp. Ed.), and A.A. Shishlovskiy.

PURPOSE: This book is intended for engineers, scientific workers, and technicians dealing with problems of inspection and flaw detection.

COVERAGE: This is a collection of scientific papers presented at a

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conference sponsored by the Academy of Sciences, UkrSSR, and the Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti, Ukrainskoye pravleniye (Ukrainian Branch, Scientific and Technical Society of the Instrument-manufacturing Industry). The papers deal with modern methods of inspection and flaw detection used in the machinery- and instrument-manufacturing industries. The subjects discussed include the use of electron microscopes in the investigation of metal surfaces; X-ray, gamma-ray, luminescense, magnetic, and ultrasonic methods of flaw detection; use of radioactive isotopes; X-ray diffraction methods of metal analysis; and the use of interferometers for measuring length and thickness and determining the coefficient of linear thermal expansion. No personalities are mentioned. References follow several of the papers.

TABLE OF CONTENTS:

New Methods of Inspection (Cont.) SOV/2555

Decisions of the Ukrainian Republic Conference on Problems of New Methods of Inspection and Flaw Detection in the Machinery- and Instrument-manufacturing Industries 257

AVAILABLE: Library of Congress

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GO/bg
11-20-59

ZHERNOVOY, A.I.; YEGOROV, Yu.S.; LATYSHEV, G.D.

Using proton resonance in measuring and stabilizing weak uniform magnetic fields [with summary in English]. Inzh.-fiz. zhur. 1 no.8:95-97 Ag '58. (MIRA 11:8)

1.Institut inzhenerov zheleznodorozhnogo transporta, Leningrad.
(Magnetic fields--Measurement) (Nuclear magnetic resonance)

SOV/120-58-2-36/37

AUTHORS: Zhernovoy, A. I., Yegorov, Yu. S. and Latyshev, G. D.

TITLE: Measurement and Stabilisation of Weak Magnetic Fields Using Proton Magnetic Resonance (Izmereniye i stabilizatsiya slabykh magnitnykh poley na osnove magnitnogo rezonansa protonov)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, p 115 (upper half) (USSR)

ABSTRACT: Up to the present time the method of nuclear resonance has only been used in the measurement and stabilisation of strong and intermediate magnetic fields. In the case of weak fields the application of the method was difficult because of a small signal to noise ratio. The authors have considerably reduced the dependence of the amplitude of the signal on the magnitude of the measured field by the use of a preliminary magnetisation of the current of water in a subsidiary magnet giving rise to a strong field. In this way it was found to be possible to measure and stabilise magnetic fields of a few oersted with small volume specimens. The accuracy of measurement is limited only by the accuracy with which the frequency can be measured. The

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SOV/120-58-2-36/37

Measurement and Stabilisation of Weak Magnetic Fields Using Proton Magnetic Resonance.

coefficient of stabilisation for the scheme described in Ref.1 is 300. A full description of the work will be published in the future issue of this journal. There is 1 Soviet reference.

ASSOCIATION: Leningradskiy institut inzhenerov zheleznodorozhnogo transporta (Leningrad RR Transport Engineering Institute)

SUBMITTED: October 31, 1957.

1. Magnetic fields--Stabilization 2. Magnetic fields--Measurement 3. Nuclear magnetic resonance--Applications 4. Frequency--Measurement

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SOV/120-58-2-37/37

AUTHORS: Zhernovoy, A. I., Yegorov, Yu. S. and Latyshev, G. D.

TITLE: A New Method of Measuring Uniform and Non-Uniform Magnetic Fields Using Proton Magnetic Resonance (Novyy metod izmereniya odnorodnykh i neodnorodnykh magnitnykh poley na osnove magnitnogo rezonansa protonov)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, p 115 (lower half) (USSR)

ABSTRACT: A method has been developed for the measurement of magnetic fields using the phenomenon of nutation of the total magnetic moment of nuclei. The measurement was carried out using a continuous current of water which in turn passes through a magnetising region in an auxiliary strong field, the region where the field is to be measured (with a superimposed high frequency transverse field which produces the nutation), and then enters the usual set up for the observation of nuclear resonance. If the frequency of the high frequency field is equal to the frequency of precession of the nuclei, the phenomenon of nutation takes place in the measured field and the nuclear resonance signal disappears or changes polarity. In practice fields between 0.17 and 500 oersted with non-uniformities of up

Card 1/2

SOV/120-58-2-37/37

A New Method of Measuring Uniform and Non-Uniform Magnetic Fields Using Proton Magnetic Resonance.

to 200 oersted/cm have been measured. A full description will be given in a paper to be published in a future issue of this journal.

ASSOCIATION: Leningradskiy institut inzhenerov zheleznodorozhnogo transporta (Leningrad RR Transport Engineering Institute)

SUBMITTED: October 31, 1957.

1. Magnetic fields--Measurement 2. Nuclear magnetic resonance--Applications 3. Frequency--Measurement

Card 2/2

USCOMM-DC-55889

SOV/120-58-5-17/32

AUTHORS: Zhernovoy, A. I., Yegorov, Yu. S., Latyshev, G. D.

TITLE: A New Method of Measuring Uniform and Non-Uniform Magnetic Fields, Using Proton Magnetic Resonance (Novyy metod izmereniya odnorodnykh i neodnorodnykh magnitnykh poley na osnove magnitnogo rezonansa protonov)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 5, pp 71-72 (USSR)

ABSTRACT: A method is suggested for measuring magnetic fields between 0.17 and 500 oersted with non-uniformities up to 200 oersted/cm. The method is based on the phenomenon of nutation, which consists in the change in the precession cone of the total magnetic moment of nuclei under the action of a transverse field oscillating with a frequency $\omega = \gamma H$, where H is the magnetic field in which the nuclei are placed, and γ is the gyromagnetic ratio. The apparatus is illustrated diagramatically in Fig.1. The flowing water from a magnetising field enters into a nutation element which is placed in the measured field and then passes into an

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A New Method of Measuring Uniform and Non-Uniform Magnetic Fields, Using Proton Magnetic Resonance

absorption element placed in a uniform field and which serves as the detector of nutation. The nutation element is in the form of a coil of a few turns placed on a glass tube. If the frequency of the generator $\omega \neq \omega_o$, where $\omega_o = \gamma_p H_o$, γ_p is the gyromagnetic ratio and H_o is the measured field, then the absorption signal is given by:

$$A \sim M_o \exp(- V_T/QT_1) \quad , \qquad (1)$$

where V_T is the volume of the connecting tube between the absorption and nutation elements, Q is the water flow, T_1 is the longitudinal relaxation time, and M_o is the total magnetic moment of protons per unit volume of water passing through the nutation element. If the frequency of the generator is $\omega = \omega_o$, then, due to the nutation of the vector M_o from the direction of H_o, transverse components M_x and M_y appear in the nutation element volume V_N. In that case the signal will be given by:

$$A \sim \left[M_z^2 \exp\left(-2V_T/QT_1\right) + \left(M_x^2 + M_y^2\right) \exp\left(-2V_T/QT_2^*\right) \right]^{1/2} , \quad (2)$$

where T_2^* is the transverse relaxation time. Since $T_1 \gg T_2^*$, it follows that $A \sim M_z$. When $V_N/Q \ll T_1$, $\Delta H_o < H_1$, $\omega = \omega_o$ and ΔH_o is the non-uniformity of the field in the volume of the nutation element while H_1 is equal to half the amplitude of the oscillating field, then it follows from the solution of Bloch's equation, that:

$$M_z = M_o \left(\cos K \gamma H_1 \frac{V_H}{Q} + \frac{1}{2T_2 K \gamma H_1} \sin K \gamma H_1 \frac{V_H}{Q} \right) \exp\left(- \frac{V_H}{2T_2 Q} \right) , \quad (3)$$

Card 3/5

A New Method of Measuring Uniform and Non-Uniform Magnetic Fields, Using Proton Magnetic Resonance

where $K = (1 - 1/4T_2^2\gamma^2H_1^2)^{1/2}$. It follows from Eq.(3) that the nutation angle $\theta = K\gamma H_1 V_N/Q$ governs the form of the absorption signal. If $\theta = n\pi$, then for even n the signal is positive and for odd n it is negative. If $\theta = (2n - 1)\pi/2$, then the signal is equal to 0 . This is in good agreement with experiment. The dependence of the amplitude of the first negative signal on Q is shown in Fig.2. It is clear from this plot that the first multiplier in Eq.(3) agrees with experiment. For $V_N = 0.2$ cm^3 it was found that $T_2 = 3.6 \times 10^{-3}$ sec. The legend of Fig.1 is as follows: H_o is the measured magnetic field, 6 nutation element, 1 frequency generator, 2 frequency meter, 5 nuclear absorption element, 3 and

SOV/120-58-5-17/32

A New Method of Measuring Uniform and Non-Uniform Magnetic Fields, Using Proton Magnetic Resonance

4 detectors of nuclear absorption signal. There are 2 figures and 2 references, 1 of which is English and 1 Soviet.

ASSOCIATION: Leningradskiy institut inzhenerov Zh.-D. transporta (Leningrad Institute for Railway Transport Engineering)

SUBMITTED: October 31, 1957.

Card 5/5

SOV/120-58-5-18/32

AUTHORS: Zhernovoy, A. I., Yegorov, Yu. S., Latyshev, G. D.

TITLE: Measurement and Stabilization of Weak Magnetic Fields Using Proton Magnetic Resonance (Izmereniye i stabilizatsiya slabykh magnitnykh poley na osnove magnitnogo rezonansa protonov)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 5, pp 73-75 (USSR)

ABSTRACT: Proton magnetic resonance is used to measure and stabilise weak, uniform magnetic fields. The apparatus constructed for this purpose may be used to measure magnetic fields beginning with 5 oersted. The magnetic fields may be measured with an accuracy whose lower limit is 10^{-4} and which increases as the field increases. The stabilization of magnetic fields is obtained beginning with 12 oersted. The stabilization coefficient at its lower limit is equal to 300. The working substance is pure water (Refs.6 and 7). The element through which the water is flowing is in the form of a glass tube. The length of the high frequency coil wound directly on the tube is 5 cm. The frequency of

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Measurement and Stabilization of Weak Magnetic Fields Using Proton Magnetic Resonance

the modulation of the field is 15 c/s. There are 5 figures and 7 references, of which 1 is Swiss, 3 English and 3 Soviet.

ASSOCIATION: Leningradskiy institut inzhenerov zh.-d. transporta (Leningrad Institute for Railway Transport Engineering)

SUBMITTED: October 31, 1957.

ZHERNOVOY, A.I.;YEGOROV, Yu.S.;LATYSHEV, G.D.

Using proton resonance in measuring nonuniform magnetic fields[with summary in English]. Inzh.-fiz. zhur. no. 9:123-127 S '58.
(MIRA 11:10)

1. Institut inzhenerov zheleznodorozhnogo transporta, g. Leningrad.
(Magnetic fields--Measurement)
(Nuclear magnetic resonance)

KOVRIGIN, O.D.; LATYSHEV, G.D.

Measurement and stabilization of the magnetic field of the beta-spectrometer with double focusing by using a magnetic modulation probe. Inzh.-fiz.zhur. no.11:92-97 N '58.
(MIRA 12:1)

1. Institut inzhenerov zheleznodorozhnogo transporta, g. Leningrad.
(Magnetic fields)

SOV/48-22-7-3/26

AUTHORS: Sergeyev, A. G., Krisyuk, E. M., Latyshev, G. D., Vorob'yev, V. D., Kol'chinskaya, T. I.

TITLE: Tl^{208} Level Scheme (O skheme urovney Tl^{208})

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol. 22, Nr 7, pp. 785-787 (USSR)

ABSTRACT: In order to confirm and to define more precisely the spin values of the excited Tl^{208} levels, the relative intensities of α-transitions were calculated under consideration of the carried off angular momentum. It is shown that the consideration of the angular momentum of the α-particles substantially improves the consistency with experimental data. The calculated relative probabilities for α-transitions to the 0,40 and 493 keV levels for which the spins have been uniquely determined are in remarkable agreement with the experiment. This allows to attribute spin values also to those levels that have not yet been determined. For the 328 and 473 keV levels the best agreement with experimental intensities of the α-groups resulted from the 4^+ and 5^+ spin values, respectively. With these spin values, however, the missing

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Tl^{208} Level Scheme :

SOV/48-22-7-3/26

γ-transition between the 493 and 328 keV levels is incomprehensible. One might expect that this transition must be of the M1 type and that a sufficiently strong line in the conversion spectrum would occur which, however, was not detected. The 328, 473, 493 and 619 keV levels are accounted for by the splitting of the configuration $d_{3/2}\, g_{9/2}$, which gives a quadruplet having the spin values 3^+, 4^+, 5^+, 6^+. The spins 3^+ and 6^+ for the 493 and 619 keV levels are in agreement with such a configuration. However, the order of succession of the levels with spins 4^+ and 5^+ so far remains unexplained. There are 1 figure, 2 tables, and 12 references, 5 of which are Soviet.

ASSOCIATION: Kafedra fiziki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta im. V. N. Obraztsova
(Department of Physics of the Institute of Railway Transportation Engineers imeni V. N. Obraztsov)

Card 2/2

AUTHORS: Krisyuk, E. M., Latyshev, G. D. SOV/48-22-8-12/20

TITLE: Compensation of the Terrestrial Magnetic Field (Kompensatsiya magnitnogo polya zemli)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol. 22, Nr 8, pp. 976 - 984 (USSR)

ABSTRACT: This problem arose in connection with the construction of the ironless β-magnetic spectrometer with double focusing (r_0=50 cm).

The magnetic field had to be compensated within the range of the spectrometer. This was done in three steps: 1) Choice of a suitable location for the apparatus in the laboratory, where a sufficient homogeneity of the field was ensured. 2) The construction of a coil system creating a sufficiently homogeneous field, which compensates the earth's magnetic field. 3) Design of a device which is able to modify automatically the current in the coil system, if the components of the magnetic field of the earth would vary. This problem is presented in this paper. For this purpose usually systems consisting of several current-carrying rings are used, which are arranged symmetrically to the central plane. These systems permit free

Card 1/4

Compensation of the Terrestrial Magnetic Field

access to equipment located between these rings. Tables 1 and 2 contain the relative values of the field components of the field created by Helmholtz (Gel'mgol'ts) rings. For the sake of convenience all values of H were multiplied by 10^4. From the tables can be seen that the required compensation of the vertical component of the terrestrial magnetic field can only be achieved, if $x<0,1$ and $y<0,1$. This implies that $R>6$ m. Coils with such a radius are too great as compared with the dimensions of the equipment. Hence, systems must be employed which are more complicated than those with two symmetric current-carrying rings. In tables 3 and 4 the topography of the field of a system consisting of three coils is given. The measuring units are the same as used with Helmholtz coils. From the tables can be seen that the necessary compensation of the horizontal component of the terrestrial field can be achieved with a coil radius of 1,75 m in the operation range of the spectrometer. This system, however, is not sufficient for the compensation of the vertical component of the field. Tables 5 and 6 show the field topography of a four-coil system. By

such a system with a coil radius of 1,75 m the vertical component can also be compensated to the required degree. Finally a table (7) comparing the discussed systems is given. The information presented shows that it is not possible to choose optimum values of $\frac{B}{D}$ in particular for the system by McKeehan (Mak-Kikhen). If the coils are not made very accurately, the occurrence of additional terms of the order of $\frac{\alpha}{R}(r/\varrho)^2$ must be expected, where α denotes the deviation from the computed dimensions of the system.
There are 7 tables and 4 references, 1 of which is Soviet.

ASSOCIATION: Kafedra fiziki Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta im. V. N. Obraztsova (Chair of Physics of the Leningrad Institute of Railroad Transport Engineers imeni V. N. Obraztsov)

ZHERNOVOY, A.I.; YEGOROV, Yu.S.; LATYSHEV, G.D.

Estimation of accuracy in the nutation measurements of a magnetic field. Izv. AN SSSR. Ser. fiz. nauk 22 no.8:988-992 Ag '58. (MIRA 11:10)

1. Leningradskiy institut inzhenerov zheleznodorozhnogo transporta imeni V.N. Obraztsova.

(Magnetic fields--Measurments)

SOV/48-22-8-15/20

AUTHORS: Zhernovoy, A. I., Latyshev, G. D.

TITLE: New Measuring Method of Spin-Lattice Relaxation Time in Liquids (Novyy metod izmereniya spin-reshetochnogo vremeni relaksatsii zhidkostey)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol. 22, Nr 8, pp. 993 - 993 (USSR)

ABSTRACT: If a pick-up (datchik) is used in the investigation of a flowing resonance medium (Ref 1), the possibility arises of measuring the longitudinal relaxation time in a simple manner. If the condition

$$H_2 \ll H_1 e^{-V_2/QT_1}, \quad (1 - e^{-V_3/QT_1}) \; H_3 \ll H_1 e^{-V_2/QT_1}$$

is satisfied, the amplitude of the signal of nuclear magnetic resonance is given by:

$$A_c \sim H_1 e^{-V_2/QT_1} (1 - e^{-V_1/QT_1}).$$

This formula was confirmed experimentally. If the dependence of the amplitude of the signal on the volume V_2 or V_1 is studied at constant Q, the absolute values of the longitudinal

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relaxation time $> 0,05$ sec can be determined with an accuracy up to a few per cent. The advantages of this method are as follows: Good accessibility to measurement by any nuclear magnetic resonance measuring unit (skhema YaMR), the absence of errors because of the action of a high-frequency field on the nuclear relaxation, the possibility of measuring T_1 of nuclei in an arbitrary magnetic field practically from zero values. The relaxation times measured as a control do not contradict those measured by other methods. The method is convenient in the investigation of solvation processes and of the complex formation in chemical reactions, in catalytic processes etc. There is 1 reference, 1 of which is Soviet.

ASSOCIATION: Leningradskiy institut inzhenerov zheleznodorozhnogo transporta im. V. N. Obraztsova (Leningrad Institute of Railroad Transport Engineers imeni V. N. Obraztsov)

AUTHORS: Zhernovoy, A. I., Latyshev, G. D. SOV/48-22-8-16/20

TITLE: A New Method of Measuring the Spin-Spin Relaxation Time of Liquids (Novyy metod izmereniya spin-spinovogo vremeni relaksatsii zhidkostey)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol. 22, Nr 8, pp. 994 - 994 (USSR)

ABSTRACT: In contrast to all other methods (Refs 1-4), this method, which was proposed by the authors, permits to determine the spin-spin relaxation time of nuclei in very weak magnetic fields (near zero). It is accessible to measurement with any recording equipment for nuclear resonance, the method, however, being applicable only to liquid samples with $T_1 > 0{,}05$ sec (T_1 - spin-lattice relaxation time). The substance under investigation passes through a strong magnetic field for a period which is sufficient for a complete polarization of the nuclei. Then it flows through a connecting tube into the volume V_1 which is kept in a very weak homogenuous field shielded from external fields. The inhomogeneity of this field which is directed

transversely to the flow of the liquid should not exceed $1/T_2$. If the field strength is reduced, this condition can more easily be satisfied. When the liquid enters the volume V the total nuclear magnetic moment is turned into a direction at right angles to the external magnetic field by the action of the oscillating resonance field. When it leaves the volume it is turned into a parallel direction in the same manner. If Q denotes the water consumption, the total nuclear magnetic moment is reduced by the factor

$$e^{-V/QT_2}$$

during its stay in the volume V. If the volume V, which is equal to V_1 and V_2, amplitudes of the nuclear magnetic resonance corresponding to A_1 and A_2 are observed, the following equation holds:

$$T_2 = \frac{V_2 - V_1}{Q \ln \frac{A_1}{A_2}}$$

S/659/62/008/000/007/028
I048/I248

AUTHORS: Svechnikov, V.N., Kocherzhinskiy, Yu.A., Latysheva, V.I., and Pan, V.M.

TITLE: A study of chromium-niobium-titanium alloys

SOURCE: Akademiya nauk SSSR. Institut metalurgii, Issledovaniya po zharoproochnym splavam. v.8. 1962. 56-61

TEXT: This is part of a systematic study of ternary systems consisting of Cr, Nb, and various third components; this part deals with Cr-based alloys containing up to 47.5% Nb and 37.5% Ti, and with Nb-based alloys containing up to 30% Cr and 30% Ti. The isothermal sections at 1250°C and 1380°C are presented. In the Cr-rich corner (above 60% Cr) there are three one-phase regions (α-solid solution based on Cr, β-solid solution based on $NbCr_2$, and γ-solid solution based on $TiCr_2$), three two-phase regions ($\alpha+\beta$, $\alpha+\gamma$, $\beta+\gamma$) and one three-phase region ($\alpha+\beta+\gamma$) at 1250°C; at 1380° only α, β, and $\alpha+\beta$ exist and a liquid phase (composition 25-35% Ti, 5-15% Nb) is observed. In the Nb rich corner (above 70%

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S/659/62/008/000/007/028
I048/I248

A study of chromium-niobium-titanium alloys

Nb) there are a single phase region δ (Nb-based solid solution) and a two-phase region $\beta + \delta$; the δ region is enlarged on heating to 1380° but both regions exist at 1250 and 1380°C. Although some of the alloys in the system studied are characterized by a high hardness (e.g., H_T = 1187 kg./sq.,m. for the alloy containing 30% Cr, 70% Nb at 600°C), and other are characterized by high resistance to scale formation at high temperatures (e.g., the alloy containing 25% Cr, 5% Ti), there are no alloys which have both properties simultaneously. There are 4 figures and 2 table.

Card 2/2

LATYSHEVA, V.I.
AID Nr. 984-11 6 June

Cr-Nb-Ti SYSTEM (USSR)

Svechnikov, V. N., Yu. A. Kocherzhinskiy, V. I. Latysheva, and V. M. Pan. IN: Akademiya nauk UkrSSR. Institut metallofiziki. Sbornik nauchnykh trudov, no. 16, 1962, 128-131. S/601/62/000/016/017/029

One hundred and forty Cr-Nb-Ti alloys melted from 99.987% pure Cr, 99.5% pure Nb, and iodide Ti have been studied. Phase boundaries were determined, and the isothermal section of the ternary diagram at 1250°C was plotted from the results of microscopic and x-ray diffraction analysis of alloys rapidly cooled after annealing at 1250°C for 75 hrs (Nb-rich alloys, for 150 hrs). The isothermal section was found to contain four single-phase (α, β, δ, ε) regions, four two-phase ($\alpha + \beta$, $\varepsilon + \delta$, $\beta + \delta$, $\alpha + \varepsilon$) regions, and two three-phase ($\alpha + \beta + \varepsilon$, $\delta + \beta + \varepsilon$) regions, where α is a Cr-base solid solution, β, a low-temperature modification of the $NbCr_2$ ($TiCr_2$) intermetallic compound (Laves

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AID Nr. 984-11 6 June

Cr-Nb-Ti SYSTEM (Cont.)

S/601/63/000/016/017/029

phase of the $MgCu_2$ type), δ, a (Ti-Nb) base solid solution, and ε, a high-temperature modification of the $NbCr_2$ intermetallic compound (Laves phase of the $MgZn_2$ type). From the data of the differential thermal analysis the phase diagram of the Cr-$NbCr_2$-$TiCr_2$ system was plotted. The solubility of Cr in Nb with 10% Ti was found to vary from 19.2% at the solidus temperature (1810°C) to 17% at 1000°C.

[MS]

Card 2/2

LATYSHEVA, V.I.

AID Nr. 984-12 6 June

Cr-Ti PHASE DIAGRAM (USSR)

Svechnikov, V. N., Yu. A. Kocherzhinskiy, and V. I. Latysheva. IN: Akademiya nauk UkrSSR. Institut metallofiziki. Sbornik nauchnykh trudov, no. 16, 1962, 132-134. S/601/62/000/016/018/029

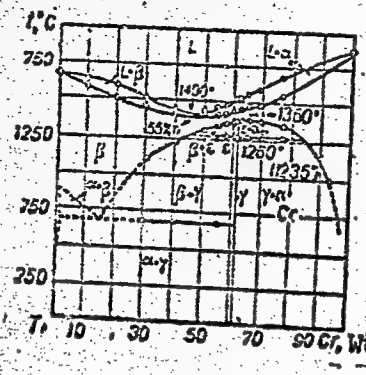
As a part of the investigation of the Cr-Nb-Ti system, the Institute of Physics of Metals of the Ukrainian Academy of Sciences has studied the Cr-Ti system. Fifteen Cr-Ti alloys with 0 to 100% Cr were melted from electrolytic Ni and iodide Ti in

Card 1/2

AID Nr. 984-12 6 June

Cr-Ti PHASE DIAGRAM [Cont'd]

S/601/62/000/016/018/029



Cr-Ti phase diagram

a nonconsumable tungsten electrode arc furnace in an argon atmosphere and homogenized at 1250°C for 75 hrs, also in argon. The alloys contained 0.004% max W and 0.0066% max Cu. X-ray diffraction patterns confirmed the existence of two modifications of the $TiCr_2$ intermetallic compound: a low-temperature γ-modification with a bcc lattice of the $MgCu_2$ type, and a high-temperature ε modification with an hcp lattice of the $MgZn_2$ type. Both modifications are Laves phases. The extent of the homogeneity zone of $TiCr_2$ does not exceed 2% Ti; its actual composition is 37-39% Ti. A complete Cr-Ti phase diagram [see illustration] was plotted from the data of differential thermal analysis.

[MS]

Card 2/2

L 27412-65 EWT(m)/EPF(n)-2/EWP(t)/T/EWP(b) Pu-4 IJP(c) JD/JG

ACCESSION NR: AT5005123 S/2601/64/000/019/0192/0195

AUTHOR: Svechnikov, V. N. (Academician AN UkrSSR); Kocherzhinskiy, Yu. A.; Latysheva, V. I.

TITLE: Phase diagrams of $NbCr_2$-$TiCr_2$ and $NbCr_2$-Ti systems

SOURCE: AN UkrSSR. Institut metallofiziki. Sbornik nauchnykh trudov, no. 19, 1964. Voprosy fiziki metallov i metallovedeniya (Problems in the physics of metals and physical metallurgy), 192-195

TOPIC TAGS: chromium titanium compound, chromium niobium compound, chromium niobium titanium system, intermetallic compound, intermetallic compound alloy, alloy phase diagram, alloy phase transformation

ABSTRACT: The alloys of the $NbCr_2$-$TiCr_2$ and $NbCr_2$-Ti sections of the Cr-Nb-Ti system have been investigated. X-ray diffraction patterns showed that at 1150C, all $NbCr_2$-$TiCr_2$ alloys were single-phase alloys with the $MgCu_2$-type lattice whose constant changes continuously from $NbCr_2$ to $TiCr_2$. Thermal analysis indicated that also the high-temperature modifications of the compounds form a continuous series of solid solutions. Investigation of the eutectoid $\gamma \rightleftarrows \alpha + \beta$ transformation in $NbCr_2$-Ti alloys (where γ is a solid solution based on the high-temperature modifi-

Card 1/2

L 27412-65

ACCESSION NR: AT5005123

cation of Ti, α is a solid solution based on the low-temperature modification of Ti, and β is a solid solution based on the high-temperature modification of $NbCr_2$) proved to be difficult because the γ-solid solution does not decompose under ordinary conditions, but remains in the supercooled state indefinitely. To obtain equilibrium at temperatures lower than the eutectoid, alloys containing 50—100% Ti were annealed at 500C for 500 hr. Dilatometric measurements definitely established that on heating, the eutectoid transformation in these alloys occurs in a wide temperature range. A significant solubility of Cr and Nb in the high-temperature modification of Ti, a eutectoid decomposition at 600C and a Ti content in eutectoid of 80%, a very low solubility of Ti in $NbCr_2$ and of Cr and Nb in the low-temperature modification of Ti, and the solidus and liquidus temperatures were the only facts positively established. But the existence and the temperature range of three-phase regions α + β + γ, β + γ + ε, and γ + ε + L (where ε is a high-temperature modification of $NbCr_2$ and L is liquid) was only tentatively assumed. Orig. art. has: 5 figures. [MS]

ASSOCIATION: Institut metallofiziki AN UkrSSR (Institute of Physics of Metals, AN UkrSSR)

SUBMITTED: 21Jun63 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 000 ATD PRESS: 3192

Card 2/2

L 41582-65 EWT(m)/EPF(n)-2/ENG(m)/EPR/T/EWP(t)/EWP(b)/EWA(c) Pa-4/Pu-4
ACCESSION NR: AT5008876 IJP(c) JD/JG S/2601/64/000/020/0125/0129

AUTHOR: Kocherzhinskiy, Yu. A.; Latysheva, V. I.

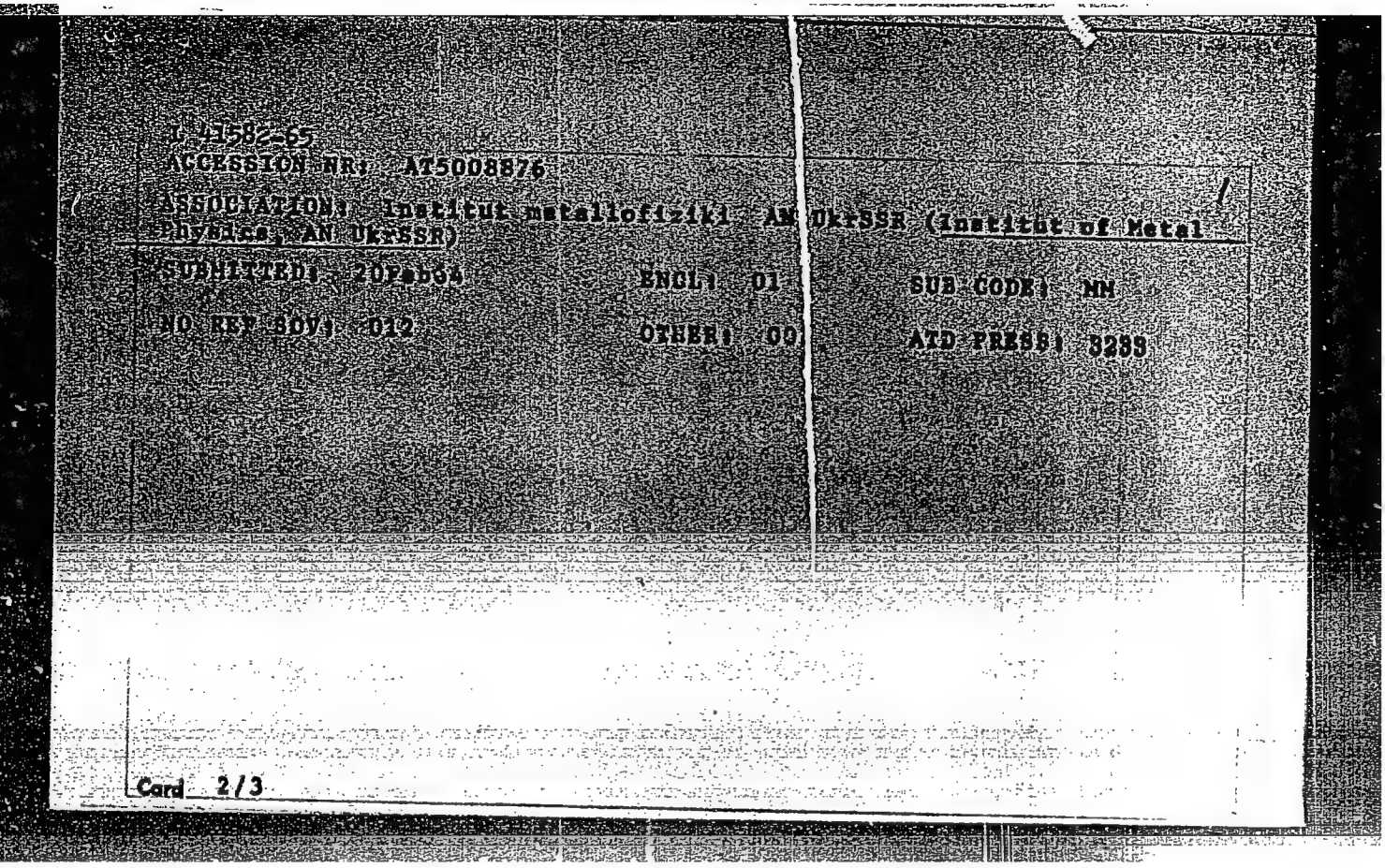
TITLE: Phase diagram of the chromium-niobium-titanium system

SOURCE: AN UkrSSR. Institut metallofiziki. Sbornik nauchnykh trudov, no. 20, 1964. Voprosy fiziki metallov i metallovedeniya (Problems in the physics of metals and physical metallurgy), 125-129

TOPIC TAGS: chromium, niobium, titanium, ternary system alloy, chromium containing alloy, niobium containing alloy, titanium containing alloy, ternary system phase diagram, refractory alloy

ABSTRACT: A phase diagram of the chromium-niobium-titanium system has been plotted on the basis of differential thermal analysis of 206 alloys prepared from 99.5%-pure electrolytic chromium, titanium, and niobium, melted in an arc furnace and annealed at 1250C for 75 hr. The content of each component varied from 10 to 90%. The low-melting-point alloys are located close to the solidus line of the binary chromium-titanium system, while the most refractory alloys are located in the region of alloys with high niobium content. (see Fig. 1 of the Enclosure). Orig. art. has: 3 figures. [ND]

Card 1/3



L 41582-65
ACCESSION NR: AT5008876

(ASSOCIATION: Institut metallofiziki AN Ukr SSR (Institut of Metal
Physics, AN Ukr SSR)

SUBMITTED: 20Feb64 ENCL: 01 SUB CODE: MM

NO REF SOV: 012 OTHER: 09 ATD PRESS: 3233

Card 2/3

L 13358-63 EWT(1)/EWG(k)/BDS/EEC(b)-2 AFFTC/ASD Pz-4 AT/IJP(C)

ACCESSION NR: AP3001269 S/0181/63/005/006/1537/1547

AUTHOR: Ksendzov, YA. M.; Ansel'm, L. N.; Vasil'yeva, L. L.; Laty*sheva, V. M.

TITLE: Mobility of current carriers in NiO containing impurities of Li

SOURCE: Fizika tverdogo tela, v. 5, no. 6, 1963, 1537-1547

TOPIC TAGS: current carrier, Ni, Li, O, polaron, thermoelectromotive force, Hall effect, electrical conductivity, acceptor, donor

ABSTRACT: The authors have examined the electrical conductivity, thermoelectromotive force, and Hall effect in solid solutions of Li sub x Ni sub 1-x O for values of x between 0.01 and 0.2 in the temperature interval from liquid nitrogen to 300C. The experimental data are satisfactorily explained by the ordinary energy scheme with a narrow polaron band formed by holes at levels of Ni sup II and by acceptor levels lying above the Ni sup II level at 0.2 ev and more, depending on the Li concentration. In the computations the authors kept in mind the partial compensation of acceptors by donors formed by vacant sites in the oxygen part of the lattice; they also considered the electronic conductivity along acceptor levels. Data on the Hall effect and computation of drift velocity

Card 1/2

L 13358-63
ACCESSION NR: AP3001269

3

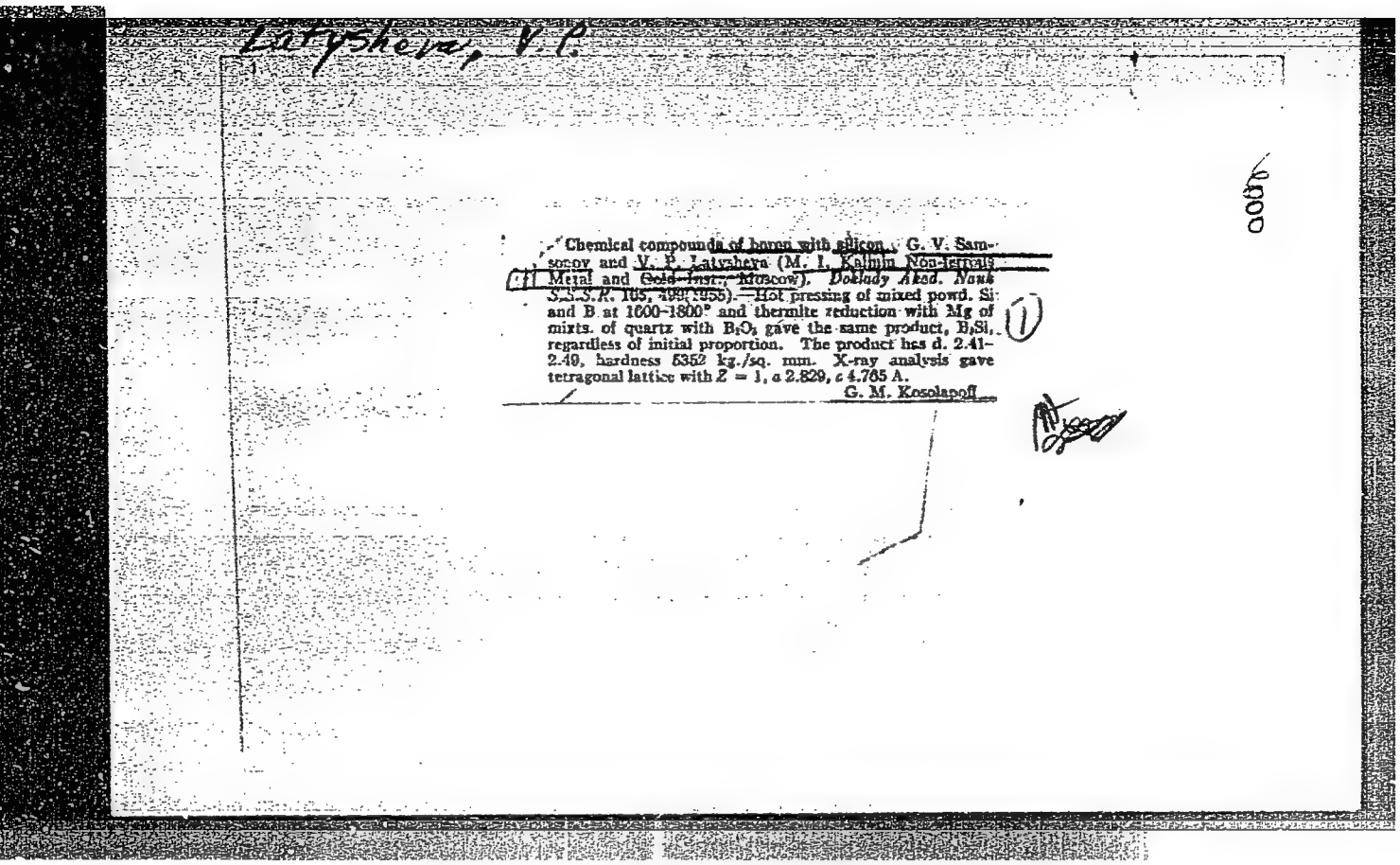
have shown that the mobility of holes in the polaron band diminishes but the mobility of electrons in acceptor levels increases exponentially with rising temperature. The activation energy of hole mobility is near the energy corresponding to the Debye temperature, but the energy of electron mobility is double the energy of the exchange interaction for antiferromagnetic ordering. "The authors express their thanks to N. N. Parfenova for chemical analysis and to A. G. Tutov for x-ray analysis of the samples." Orig. art. has: 9 figures and 7 formulas.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, Academy of Sciences, SSSR)

SUBMITTED: 28Dec62 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 007 OTHER: 013

Card 2/2



Latyshev, V. P.

Chemical compounds of boron with silicon. G. V. Samsonov and V. P. Latyshev (M. I. Kalinin Non-ferrous Metal and Gold Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 105, 499 (1955).—Hot pressing of mixed powd. Si and B at 1600–1800° and thermite reduction with Mg of mixts. of quartz with B_2O_3 gave the same product, B_4Si, regardless of initial proportion. The product has d. 2.41–2.49, hardness 5352 kg./sq. mm. X-ray analysis gave tetragonal lattice with $Z = 1$, a 2.829, c 4.785 A.

G. M. Kosolapoff

LATYSHEVA, V.P.

Category : USSR/Solid State Physics - Diffusion. Sintering E-6

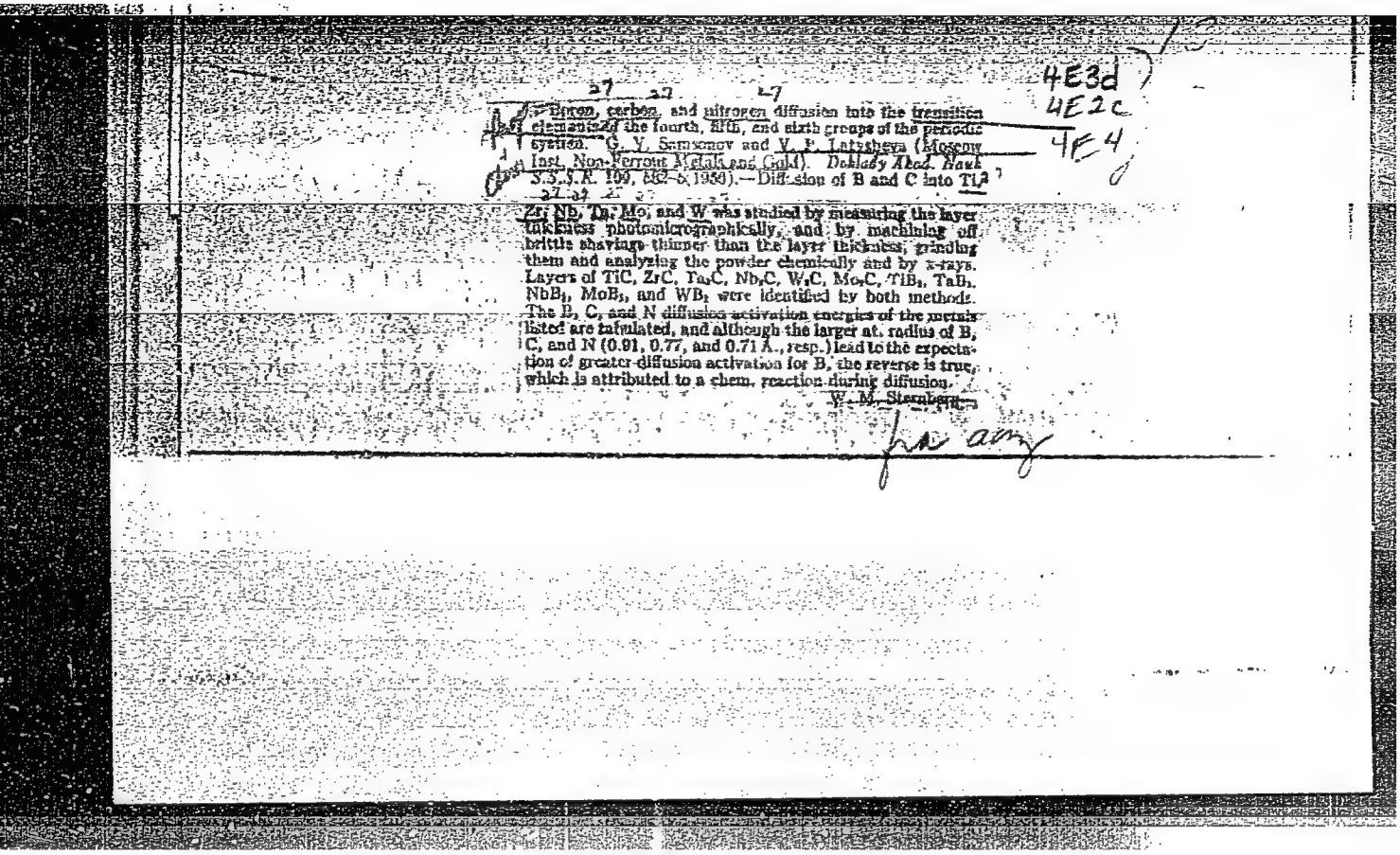
Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3890

Author : Sansonov, G.V., Latysheva, V.P.
Inst : Moscow Institute of Nonferrous Metals and Gold, USSR
Title : Investigation of the Diffusion of Boron and Carbon in Certain Metals of Transition Groups.

Orig Pub : Fiz. metallov i metallovedeniye, 1956, 2, No 2, 309-319

Abstract : Report on a phase analysis and determination of the microhardness of the products of reaction diffusion of B and C in Ti, Zr, Nb, Ta, Mo, and W. Equations were determined for the temperature dependence of the coefficient of diffusion of C and B in the above transition metals. The values of the activation energy Q are connected with the value of the ionization potential of the diffusing metalloid and the degree of incompletion of the d-electron sublevels of these metals. The values of Q have a correlation with the values of other physical constants of transition metals and carbide phases.

Card : 1/1



4E3d
4E2c
4E4

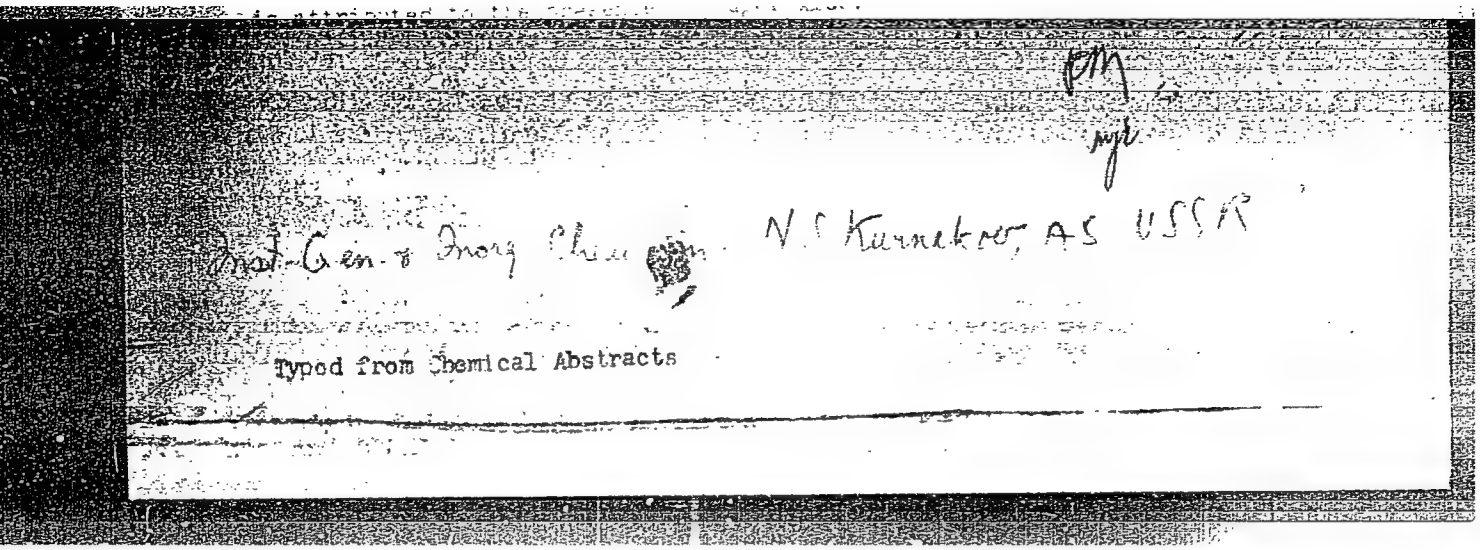
Boron, carbon, and nitrogen diffusion into the transition elements of the fourth, fifth, and sixth groups of the periodic system. G. V. Samsonov and V. P. Latysheva (Moscow Inst. Non-Ferrous Metals and Gold). *Doklady Akad. Nauk S.S.S.R.* 109, 682–6 (1956).—Diffusion of B and C into Ti, Zr, Nb, Ta, Mo, and W was studied by measuring the layer thickness photomicrographically, and by machining off brittle shavings thinner than the layer thickness, grinding them and analyzing the powder chemically and by x-rays. Layers of TiC, ZrC, Ta_2C, Nb_2C, W_2C, Mo_2C, TiB_2, TaB_2, NbB_2, MoB_2, and WB_2 were identified by both methods. The B, C, and N diffusion activation energies of the metals listed are tabulated, and although the larger at. radius of B, C, and N (0.91, 0.77, and 0.71 A., resp.) lead to the expectation of greater diffusion activation for B, the reverse is true, which is attributed to a chem. reaction during diffusion.
W. M. Sternberg

for amy

LATYSHEVA, V. I.

Chem.

Synthesis of the superoxides of alkaline earth metals. I. The reaction of $CaO_2 \cdot 8H_2O$ with perhydrol at 100°. I. I. Vol'nov, V. N. Chamova, V. P. Se[illegible] and E. I. Latysheva. Zhur. Neorg. Khim. 1, 1937-42(1956).--By comparing titration with O evolution, $Ca(O_2)_2$ can be distinguished from CaO_2 and [illegible] $CaO_2 \cdot 8H_2O$ prepared by the method of Traube and Schultze (C.A. 16, 69[illegible] to contain 2.30-4.58% $Ca(O_2)_2$. Thermograms are characterized by an [illegible] reaction at 100° (loss of water), and exothermic reactions at [illegible] superoxide O) and at [illegible] loss of peroxide O). Magnetic-susce[illegible] given as a function of [illegible]. The dark-cream color of [illegible]



Typed from Chemical Abstracts

LATYSHEVA, Ye. I.

AUTHOR: Vol'nov, I.I. and Latysheva, E.I. 558

TITLE: Research in the Field of the Synthesis of Alkali-Earth Metal Superoxides. II. Formation of $Sr(O_2)_2$ from $SrO_2.2H_2O_2$. (Poiski v Oblasti Sinteza Superoksidov Shchelochnozemel'nykh Metallov. II. Obrazovanie $Sr(O_2)_2$ iz $SrO_2.2H_2O_2$.

PERIODICAL: "Zhurnal Neorganicheskoy Khimii" (Journal of Inorganic Chemistry) Vol.II, No.2, pp.259-262. (U.S.S.R.) -1957

ABSTRACT: By the vacuum-drying of $SrO_2.2H_2O_2$ at 50°C, that is at a temperature lower than the decomposition temperature of crystallisational hydrogen peroxide, and at a residual pressure of 10 mm. mercury, a peroxide preparation of strontium has been prepared for the first time which contains $Sr(O_2)_2$ in concentrations of the order of 17.5 wt. %. The mechanism proposed by Kazarnovskiy[4] for the formation of superoxide from peroxide perhydrates, based on the formation of the intermediate radicals OH and HO_2 has apparently been confirmed by the results obtained.

There are seven references, three of them Russian.
Ref.4, quoted in the text, is:
I.A.Kazarnovskii and A.B.Neiding, DAN SSSR, Vol.86, No.4, p.717, 1952

There are 2 figures and 3 tables.

The work was carried out at the Institute of Inorganic Chemistry imeni Kurnakova of the Academy of Sciences of the USSR.
Received 4 August, 1956.

Card 1/1

AUTHOR: Vol'nov, I.I., Latyshev, V.I., and Chamova, V.N. 559

TITLE: Research in the Field of the Synthesis of Alkaline-Earth Metal Superoxides. III. Formation of $Ca(O_2)_2$ from $CaO_2.2H_2O_2$. (Poiski v Oblasti Sinteza Superoksidov Shchelochnozemel'nykh Metallov. III. Obrazovanie $Ca(O_2)_2$ iz $CaO_2.2H_2O_2$.)

PERIODICAL: "Zhurnal Neorganicheskoy Khimii" (Journal of Inorganic Chemistry, Vol.II, No.2, pp.263-267. (U.S.S.R.)

ABSTRACT: Contrary to some theoretical expectations it has been found that $Ca(O_2)_2$ can exist in preparations containing relatively large quantities of CaO_2. $Ca(O_2)_2$ in concentrations of the order of 16.5 wt % could be obtained regularly by vacuum-drying $CaO_2.H_2O_2$ at 50°C at 10 mm Hg. The presence of $Ca(O_2)_2$ in such preparations has been established by chemical analysis, from heating curves and from magnetization measurements. On prolonged storage the $Ca(O_2)_2$ content decreases.

3 Figures, 3 Tables.

The work was carried out at the Institute of Inorganic Chemistry imeni Kurnakova of the Academy of Sciences of the U.S.S.R.

Received 1 September, 1956.

Card 1/1

LATYSHEVA, Ye. I.

VOL'NOV, I.I.; LATYSHEVA, Ye.I.

Research in the field of synthesis of superoxides of earth alkali metals. Zhur.neorg.khim. 2 no.7:1696-1698 Jl '57. (MIRA 10:11)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova AN SSSR.

(Barium peroxide)

LATYSHEVA, Ye. I.

3

1/ Recovery of calcium chlorids from spent liquors (Solvay process) through calcium hydroxychlorids. I. I. Valyashko and Ye. I. Latysheva. *Zhur. Prikład. Khim.* 30, 977–85 (1957).—The −20° isotherm of the system $CaCl_2$-$Ca(OH)_2$-H_2O was detd. The solid phases ice, $CaCl_2.3Ca(OH)_2.12H_2O$ (I), and $CaCl_2.6H_2O$ were present. From these and earlier available data the polytherm was constructed; the triple point located at −5°, by interpolation, contained ice-I-$Ca(OH)_2$ with only 6% $CaCl_2$. Synthetic solns. contg. 10% and 22% $CaCl_2$ were studied. The former were prepd. by adding dry $Ca(OH)_2$ at 70–80° to the soln. of $CaCl_2$ (*A*) and compared with solns. approaching the compn. of spent liquor, contg. $CaCl_2$ 10.03, NaCl 4.99, $Ca(OH)_2$ 0.00, $CaSO_4$ 0.16, and NH_4OH 0.001 wt. %, d. 1.112 (*A'*). Solns. contg. 22% $CaCl_2$ were prepd. by the addn. of $CaCl_2$ to milk of lime at 50–60° (*B*) and compared with solns. approaching the compn. of spent liquor which had been partially concd., contg. $CaCl_2$ 21.5, NaCl 8.5, $CaSO_4$ 0.00, $Ca(OH)_2$ 0.03%, d. 1.24 (*B'*). Cooling slowly to 1° gave yields of $CaCl_2$ 20.3 and 26.1% from *A* and *A'* and 51.6 and 55.7% from *B* and *B'*. The heating curves of I exhibited 3 endothermic effects: it was stable up to 50°, at 110° H_2O evapd., and at 540° $Ca(OH)_2$ decompd. to CaO and H_2O. Decompn. of I at 50° evapg. 14% H_2O (based on wt. of I) gave solns. contg. 24% $CaCl_2$.

I. Benewitz

MT

VOL'NOV, I.I.; LATYSHEVA, Ye.I.

Preparation of magnesium peroxide. Zhur. prikl. khim. 31 no.10: 1597-1599 O '58. (MIRA 12:1)
(Magnesium oxides)

5(2) SOV/75-14-2-18/27

AUTHORS: Vol'nov, I. I., Latysheva, Ye. I.

TITLE: On the Separate Determination of Peroxide- and Superoxide Oxygen in Superoxides (O razdel'nom opredelenii perekisnogo i nadperekisnogo kisloroda v nadperekisyakh)

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 2, pp 242-243 (USSR)

ABSTRACT: The differences in the character of linkage between the bridging oxygens in peroxides and superoxides become manifest in the hydrolysis of the compounds. Peroxides hydrolize according to the equation $Me_2O_2 + 2\ H_2O = 2\ MeOH + H_2O_2$. Superoxides, on the other hand, hydrolize according to the equation $2\ MeO_2 + 2\ H_2O = 2\ MeOH + H_2O_2 + O_2$. In this case only 2/3 of the active oxygen ("superoxide-oxygen") are transformed into O_2, and only 1/3 of the active oxygen ("peroxide-oxygen") forms hydrogen peroxide. Seyb and Kleinberg (Ref 4) devised a gasometric method of determining separately peroxide- and superoxide oxygen in NaO_2 and KO_2. By this method diethylphthalate as buffer and then a mixture of glacial acetic acid and diethylphthalate are added to the weighed portion. Super-

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On the Separate Determination of Peroxide- and Superoxide Oxygen in Superoxides

oxide oxygen is then separated and gasometrically determined. For the determination of peroxide oxygen the hydrogen peroxide formed in the acetic acid solution is then decomposed by a solution of ferric chloride in hydrochloric acid; the volume of the oxygen formed in this connection is measured. This method gives reproducible results in the analysis of alkali metal superoxides; for the analysis of preparations containing only small amounts of superoxides it is not suited because the weighed portions should be very high for the determination of peroxide oxygen. On the basis of the investigations on the separate determination of peroxide- and superoxide oxygen from a weighed portion the authors suggest the following method: the superoxide oxygen is gasometrically determined according to Seyb and Kleinberg. The gas formed in the preparation of the weighed portion with acetic acid must, however, also be analyzed with respect to CO_2 since a contamination of the superoxides by carbonates is unavoidable. Peroxide oxygen is,however,not gasometrically but only permanganometrically determined. An aliquot portion of the acetic acid solution still containing diethylphthalate is acidified with phosphoric acid (1:4) and titrated with a 0.1 n potassium permanganate solution. The results of the determina-

On the Separate Determination of Peroxide- and Superoxide Oxygen in Superoxides

tion of peroxide- and of superoxide oxygen according to this method in technical NaO_2 and KO_2 and in peroxide preparations of calcium, strontium, and barium containing impurities of $Ca(O_2)_2$, $Sr(O_2)_2$ and $Ba(O_2)_2$ are listed in a table. The reliability of the determinations of peroxide oxygen was checked by control analyses with separate weighed portions. The differences in the results of the two determinations are in the order of magnitude of 0.03%. There are 1 table and 8 references, 6 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova AN SSSR, Moskva
(Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the AS USSR, Moscow)

SUBMITTED: December 4, 1956

ACCESSION NR: AP4039620 S/0076/64/038/005/1182/1187

AUTHORS: Vol'nov, I.I. (Moscow); Tsentsiper, A.B. (Moscow); Chamova, V.N. (Moscow); Laty*sheva, Ye.I. (Moscow); Kuznetsova, Z.I. (Moscow)

TITLE: Synthesis of oxygen-labeled hydrogen peroxide from dissociated heavy oxygen water in the glow discharge

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 5, 1964, 1182-1187

TOPIC TAGS: oxygen labeled hydrogen peroxide, hydrogen peroxide synthesis, heavy oxygen water, glow discharge, heavy oxygen water vapor, labeled peroxide synthesis parameter, oxygen isotope, deuterium labeled oxygen peroxide, oxygen isotope content

ABSTRACT: The equipment for this efficient laboratory synthesis is figured. The discharge tube was fed with a 1150-1800 volt, 0.1-0.5 amp. current. The oxygen-labeled water vapor was fed at the rate of 0.03-1.84 mol/hour, the vapor pressure was 0.43-0.53 mm Hg. The dissociated water vapor was removed from the discharge area, cooled, etc. and the yield determined by titration. This was a function of the parameter Up.v, where U is the discharge force (kwa), v the rate

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ACCESSION NR: AP4039620

of adding the water vapor and p the pressure of the vapor entering the discharge tube. The isotope content of oxygen in the starter water and the peroxide was determined by mass spectrometry. Both the water remaining in the vaporizer and that formed upon decomposition of the synthesized $H_2O_2^{18}$ were found to differ little from the starter water. The gases collected during the process were found to consist of hydrogen, thus confirming the reaction

$$2H_2O \rightarrow 2H + 2OH;\ 2H \rightarrow H_2;\ 2OH \rightarrow H_2O_2.$$

The authors also synthesized $D_2O_2^{18}$ by subjecting a mixture of D_2O and H_2O^{18} to the discharge. The so obtained peroxide container 26% active oxygen, somewhat enriched from the starter material. The advantages of this method are a high degree of purity of the peroxide; the entire heavy oxygen contained in the initial water passes into the peroxide; the latter is somewhat enriched in O^{18}; solutions of the oxygen labeled peroxide ranging from 1-50% may be obtained, depending upon the energy supply for the discharge and the rate of supply of the water vapor. Yields for 5-7% solutions were 1 g/hour on a 100% $H_2O_2^{18}$ basis. Using the same equipment, the peroxide may be concentrated to 90% weight. Orig. art. has: 2 figures and 1 table.

Card 2/3

ACCESSION NR. AP4039620

ASSOCIATION: Akademiya nauk SSSR (Academy of Sciences, SSSR); Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova(Institute of General and Inorganic Chemistry).

SUBMITTED: 30May63 ENCL: 00

SUB CODE: IC NO REF SOV: 006 OTHER: 001

Card 3/3

L 43204-65 EPF(c)/EPR/EWG(j)/EWT(m)/EWP(b)/EWP(t) Pr-4/Ps-4/Peb DIAAP/IJP(c)
JD
ACCESSION NR: AP5006695 S/0076/65/039/002/0452/0453

AUTHOR: Vol'nov, I. I.; Chamova, V. N.; Latysheva, Ye. I.

TITLE: Induced exchange of oxygen between KO sub 2 and water containing oxygen-18

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 2, 1965, 452-453

TOPIC TAGS: heavy oxygen, hydrogen peroxide, potassium hydroxide, molecular oxygen, potassium superperoxide, superperoxide radical, oxygen exchange

ABSTRACT: While conducting the hydrolysis of KO_2 in H_2O^{18} with 1.76 at. % O^{18}, it was discovered that the KOH produced contained less O^{18} (1.37 at. %) than the initial water. To explain this fact, the authors investigated the mechanism of the intermediate reactions in the hydrolysis of KO_2:

$$2KO_2 + 2H_2O \rightarrow 2KOH + 2HO_2 \quad (1)$$

$$2HO_2 \longrightarrow H_2O_2 + O_2 \quad (2)$$

$$2KO_2 + 2H_2O \longrightarrow 2KOH + H_2O_2 + O_2 \quad (3)$$

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L 43204-65

ACCESSION NR: AP5006695

They suggested that the heavy oxygen was distributed between the KOH, H_2O_2 and O_2. This was confirmed by direct measurement of the isotope composition of both the molecular oxygen and the H_2O_2 produced in the 2nd reaction. The resulting isotope balance indicated that there is a very slow exchange, in alkaline medium, between the oxygen of the water and the active oxygen of the superperoxide radical. Orig. art. has: 1 table and 3 formulas.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova, Akademiya nauk SSSR (Institute of General and Inorganic Chemistry, Academy of Sciences, SSSR)

SUBMITTED: 30Jun64 ENCL: 00 SUB CODE: IC

NO REF SOV: 003 OTHER: 005

Card 2/2

LATYSHEVA, Z. I.

"High Aluminous Lightness from a Diaspore Concentrate," Ogneupory, No 10, 1949.

SOV/120-59-4-41/50

AUTHORS: Bresker, R. I., Voronin, N. I., Latysheva, Z. I.

TITLE: An Infrared Source Based on Silicon Carbide

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, p 149 (USSR)

ABSTRACT: The first Russian SiC ('globar') sources are described (Fig 1). The resistance is 5÷8 ohms; the power drain needed to give 1400°C (the working temperature) is 250-350 W. Fig 2 shows the useful life (in hours) as a function of surface temperature. Fig 3 shows the spectral energy curves for temperatures of 1200 and 1400°C. The paper contains 3 figures.

ASSOCIATION: Institut ogneuporov (Refractories Institute)

SUBMITTED: May 24, 1958.

Card 1/1

LATYSHEVA-RABIN, O.G.

Dental caries in rheumatic children. Pediatriia 37 no.6: 35-37 Je '59. (MIRA 12:9)

1. Iz kafedry terapevticheskoy stomatologii (zav. - prof. Ye.Ye.Platonov) i kafedry detskikh bolezney (zav. - prof. O.D.Sokolova-Ponomareva) Moskovskogo meditsinskogo stomatologicheskogo instituta (dir. - dotsent G.N.Beletskiy).

(DENTAL CARIES, complications, rheum. in child. (Rus))
(RHEUMATISM, in inf. & child. with dent. caries (Rus))

L 13272-66 EWT(m)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(h)/EWA(c)

ACC NR: AP6002908 JD/HM SOURCE CODE: UR/0286/65/000/024/0073/0073

INVENTOR: Medovar, B. I.; Borzdyka, A. M.; Latyshov, Yu. V.; Pinchuk, N. I.; Chekotilo, L. V.; Topilin, V. V.

ORG: none

TITLE: Weldable, heat-resistant steel. Class 40, No. 177079

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 73

TOPIC TAGS: steel, heat resistant steel, chromium containing steel, nickel containing steel, tungsten containing steel, titanium containing steel, manganese containing steel

ABSTRACT: This Author Certificate introduces a weldable, heat-resistant steel with increased resistance to local failure of welded parts. The steel contains 0.08% max carbon, 0.5% max silicon, 0.5—1.0% manganese, 14.5—16.5% chromium, 23—25% nickel, 4.0—5.0% tungsten, 1.5—2.0% titanium, 0.4—0.7% boron, and 0.02% max sulfur. [AZ]

SUB CODE: 11/ SUBM DATE: 25Apr64/ ATD PRESS: 4185

Card 1/1 UDC: 669.14.018.44

ACCESSION NR: AR4027948 S/0137/64/000/002/I072/I072

SOURCE: RZh. Metallurgiya, Abs. 2I424

AUTHOR: Laty*shov, Yu. V.

TITLE: Study of steels used for gas turbine parts

CITED SOURCE: Sb. tr. Tsentr. n.-i. in-t chernoy metallurgii, vy*p. 35, 1963, 31-45

TOPIC TAGS: gas turbine steel, low carbon steel, chromium steel, nickel steel

TRANSLATION: A study was made of the effect of W, Mo, Ti, Nb, and Co on the mechanical properties at 20 and 650°, durability, and creep strength at 650° of eight low-carbon (C 0.02-0.7%) Cr-Ni steels of type 15 Cr-35 Ni, and two steels of type 15Cr-25 Ni with 0.25-0.38% C after various heat treatments. In all the steels, the kinetics of solution of the carbide and intermetallic phase, the growth of austenite grain and the change in hardness were studied as a function of the hardening temperature. As the latter is raised from 1150 to 1250°, the hardness changes only slightly; the grain grows from point 4-3 after quenching from 1150° to point 2 after quenching from 1250°. At 1180-1200°, the hardening phase is transformed completely into a solid solution. The hardening heat treatment was carried out in three

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ACCESSION NR: AR4027948

variants: (1) 750°, 24 hr; (2) 750°, 24 hr + 700°, 50 hr; (3) 650°, 50 hr + 750°, 24 hr. Testing for a_k after long periods of soaking at 700° showed that despite the preliminary aging, there occurs, during soaking at 700°, an additional dispersion hardening which causes a drop in a_k and an increase in hardness. The most pronounced drop in a_k is observed in steel alloyed with Ti (1.7%). The tendency of steel toward thermal embrittlement is affected by the presence of elements forming a second phase (Ti, Nb), and also by the degree of alloying of the solid solution. In complex alloying of heat-resistant steel, it is necessary to insure a moderate alloying of the solid solution and to limit the amount of Ti, Nb and other elements which form the hardening phase. Different modes of heat treatment have little effect on σ_b and $\sigma_{0.2}$ at 20 and 650°. After mode 2, an appreciable drop in δ and ψ is observed. The greatest strength was displayed by steels hardened by the intermetallic phase containing Ti. Partial substitution of niobium for Ti results in a decrease in strength. As the degree of alloying of the solid solution increases for the same content of Ti, σ_1 increases. Steels subjected to treatment by modes 1 and 2 possess the highest σ_1. The optimum combination of σ_1 and plasticity is displayed by steel containing (in %): C 0.03, Cr 15.31, Ni 37.0, W 2.5, Mo 2.7, and Ti 1.2. In this steel, σ^{650}_{10000} is equal to 13 kg/mm^2, and δ (after 4400 hr) is 14%. The creep strength was studied at 650° and a stress of 12 kg/mm^2. Steels without Ti and those with a high C content

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ACCESSION NR: AR4027948

(0.38%) have a low creep strength. The remaining steels differ little in creep strength. Thus, the simultaneous alloying of steel with tungsten, Mo and Ti provides for a high heat resistance and plasticity at 650°. When molybdenum is absent from the steel, the W content should be raised to 5%. The introduction of Co (5-10%) did not result in any advantages. N. Kalinkina

DATE ACQ: 19Mar64 SUB CODE: ML ENCL: 00

Card 3/3

L 30990-66 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b)/EWA(h) IJP(c) JD/HW/JG

ACC NR: AP6002911 SOURCE CODE: UR/0286/65/000/024/0073/0074

INVENTOR: Latyshov, Yu. V.; Borzdyka, A. M.

ORG: none

TITLE: Heat-resistant austenitic steel. Class 40, No. 177082

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 73-74

TOPIC TAGS: steel, heat resistant steel, austenitic steel, chromium containing steel, nickel containing steel, tungsten containing steel, titanium containing steel, manganese containing steel

ABSTRACT: This Author Certificate introduces a heat-resistant austenitic steel. For better heat resistance and higher stability and ductility, the steel contains 0.6% max carbon, 0.1% max silicon, 0.5—2.0% manganese, 12—16% chromium, 18—21% nickel, 2—4% tungsten, 1.0—2.0% titanium, 0.025—0.1% cerium, 0.005—0.15% boron, 0.02% max sulfur, and 0.035% max phosphorus. [AZ]

SUB CODE: 11/ SUBM DATE: 25Feb64/ ATD PRESS: 4191

Card 1/1 UDC: 669.15—194.56

LATYSHOVA-RABIN, O.G.

Dental caries in rheumatic children in the interval between attacks. Stomatologiia 38 no.2:19-21 Ap '59 (MIRA 12:7)

1. Iz kafedry terapevticheskoy stomatologii (zav. - prof. Ye.Ye. Platonov) i kafedry detskikh bolezney (zav. - prof. O. D. Sokolova-Ponomareva) Moskovskogo meditsinskogo stomatologicheskogo instituta (dir. - dotsent G. N. Beletskiy)
(RHEUMATIC FEVER) (TEETH--DISEASES)

LATYSHOVA, M. G.

LATYSHOVA, M. G. - "Study of Artificially Induced Potentials in Sedimentary Rock." Sub 20 May 52, Moscow Order of the Labor Red Banner Petroleum Inst imeni Academician I. M. Gubkin. (Dissertation for the Degree of Candidate in Geological and Mineralogical Sciences).

SO: Vechernaya Moskva January-December 1952

LATYSHOVA, M. G.

Dependence Between Induced Potentials and Permeability of Sandstones
Tr. Mosk. neft. in-ta, No 12, 1953, pp 75-79

Experiments were carried out to establish the dependence of induced electrochemical activity for Devonian sandstones upon permeability. The sandstones were washed clean of salts, dried, and saturated in water of given mineralization. The dependence of the magnitude of the induced effect was determined as a function of the strength of the exciting current. In the construction of the graph showing the dependence of activity upon permeability a complex mathematical relation was observed. The curve possesses a maximum in the range 25-50 millidarcy. (RZhGeol, NO 3, 1955)

SO: Sum. No. 639, 2 Sep 55

15-57-1-358

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 1, p 55 (USSR)

AUTHORS: Latyshova, M. G., Sheffer, N. D.

TITLE: The Potentials of Induced Polarization in Finely Dispersed Sandy Clay Rocks (K voprosu o potentsialakh vyzvannoy polyarizatsii tonkodispersnykh peschano-glinistykh porod)

PERIODICAL: Tr. Moskovsk. neft. in-ta, 1955, Vol 12, pp 159-169.

ABSTRACT: Samples of sandy clay rocks were selected from the Groznyy oil field and divided into 16 fractions according to particle size. The measurement of potentials of induced polarization was made by standard methods. The results show that the value of induced activity increases in finely dispersed fractions. In order to study the total influence of all the fractions in the rocks on their activity, the specific surface area of each rock was calculated. Comparisons of the data obtained showed that the activity increases in

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The Potentials of Induced Polarization in Finely Dispersed (Cont.)

proportion to the specific surface area of the rocks. At the same time, the fact has been established experimentally that the induced activity in clays--rocks with large specific surface area--is zero. To explain this contradiction, experiments were made on artificially prepared samples of clay, saturated with water of a known chemical composition and given concentration. It was shown that the artificial samples of clay, supplied with fresh water, might create significant induced potentials and that the null activity of natural clays may be determined by high mineralization in the pore waters.

V. M. G.

LATYSHOVA, M.G.; DOBRYNIN, V.M.

Modeling the method of induced potentials. Trudy MNI no.15: 170-185 '55. (MLRA 9:8)
(Geophysics--Electromechanical analogies)
(Oil well logging, Electric--Models)

LATYSHOVA, M. G.

11(4) PHASE I BOOK EXPLOITATION SOV/2124

Mezhvuzovskoye soveshchaniye po voprosam novoy tekhniki v
neftyanoy promyshlennosti. Moscow, 1956

Razvedka i razrabotka neftyanykh i gazovykh mestorozhdeniy; materialy soveshchaniya; tom. 1 (Prospecting and Development of Oil and Gas Deposits; Papers of the Inter-Vuz Conference on New Techniques in the Petroleum Industry, Vol 1) Moscow, Gostoptekhizdat, 1958. 311 p. Errata slip inserted. 1,500 copies printed.

Eds.: I. M. Muravyev, Professor, Doctor of Technical Sciences, and V. N. Dakhnov, Professor, Doctor of Geological and Mineralogical Sciences; Editorial Board: K. F. Zhigach, Professor (Resp. Ed.), I. M. Muravyev, Professor, A. A. Tikhomirov, Candidate of Economical Sciences, V. I. Yegorov, Candidate of Economical Sciences, M. M. Charygin, Professor, F. F. Dunyev, Professor, N. I. Chernozhukov, Professor, G. M. Panchenkov, Professor, I. A. Charnyy, Professor, Doctor of Geological and Mineralogical Sciences, V. N. Dakhnov, Professor, N. S. Nameskin, Doctor of Chemical Sciences, N. A. Almazov, Docent, V. N. Vinogradov, Candidate of Technical Sciences, V. I. Sirykov, Candidate of Technical Sciences, E. I. Tagiyev, and V. N. Gurevich; Executive Ed.: M. P. Dobrynina; Tech. Ed.: E. A. Mukhina.

PURPOSE: The book is intended for engineers and scientific personnel working in the petroleum industry and vuzes. It may also serve as a textbook for advanced students of petroleum vuzes.

COVERAGE: The book contains articles written by staff members of the Moscow, Groznyy, and Ufa Petroleum Institutes, the Kuybyshev and Azerbaydzhan Industrial Institutes, the UFNII (Ufa Scientific Research Institute), VNIIneftegeofizika (All-Union Scientific Research Institute of Oil Drilling), KBNP (Design Office of Petroleum Instrument Making), the Bashneft Association (Bashkirya Petroleum). These papers, read at the Mezhvuzy (Inter-Vuz) Scientific Conference, deal with new techniques in the petroleum industry introduced since 1956. Emphasis is given to the importance of efficient drilling, geophysical prospecting, working of oil and gas deposits, and the use of new devices employed in oil and gas exploitation. There are 52 references: 41 Soviet, and 8 English.

Latyshova, M. G., and V. N. Dobrynin. [Moscow Petroleum Institute] Method of Potentials of Induced Polarization and Its Importance in the Study of Oil and Gas Wells 150

The authors stress the importance of studying the reservoir properties of productive horizons on the basis of geophysical data, without coring. Of particular interest is the method of induced polarization developed in the past few years by members of the MNI chair in industrial geophysics; it determines the specific surface and permeability of sandy reservoirs. The method of induced polarization, actually proposed long ago, remained purely academic because the phenomena of induced polarization had originally been misinterpreted. The method was later used extensively in modified form in the coal industry, and helped in establishing the presence of coal layers. Systematic studies of this method were initiated in 1948 by the MNI chair of industrial geophysics. Laboratory tests established that induced polarization of rocks may, under specific conditions, reach considerable dimensions. The studies revealed another alternative on the nature of induced polarization of porous rocks. The principal cause of the emission of potentials induced by polarization in porous rocks, when saturated with an electrolyte solution, is the deformation of the dual electrical layer present on the surface of rock grain in the polarized electrical field.

Conclusions:

1. Induced polarization assists in making a fractional breakdown of well cuts and classifies reservoirs of the lowest, medium and highest permeability; it also distinguishes clays of greater and lesser degree of sandy content.
2. Induced polarization allows an appraisal of the degree of permeability of sandy reservoirs in situations, placing it thereby among the most interesting methods of geophysical studies of oil and gas wells.